DOCUMENT RESUME

ED 291 955 CE 049 844

AUTHOR Balint, Marilyn
TITLE Development of a Self-Paced Video Program To Teach Intravenous Therapy Techniques to Second Year Registered Nursing Students. Societal Factors Affecting Educations.
PUB DATE Feb 88
NOTE 49p.; Practicum paper, Nova University. For a related document, see ED 281 044.
PUB TYPE Dissertations/Theses - Practicum Papers (043)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Audiovisual Aids; Course Content; *Film Production; Higher Education; Learning Modules; Material Development; *Medical Services; Nurses; *Nursing Education; Pacing; *Programed Instructional Materials; *Videotape Recordings
IDENTIFIERS *Intravenous Therapy; *Long Beach City College CA

ABSTRACT

A self-paced video program was developed for the registered nursing faculty at Long Beach City College (California) to teach intravenous therapy techniques to second-year nursing students. The content of the Intravenous Therapy Video was determined based on a review of the literature and input from the advisory panel (four nursing department faculty members who served as experts to review the video development process). Materials were revised in accordance with the panel's recommendations and resubmitted for approval. The Media Services Department provided direction regarding the script, format, staging, and titles, and did the actual taping. The video is designed to be used by students in the learning center at the college. The use of a self-paced video program to complement the lecture/discussion method was found to be educationally sound; however, some intravenous procedures are best taught in another format and so were not included. Based upon the findings of this study, it was recommended that (1) the Intravenous Therapy Video be given consideration in any course in the registered nursing program where intravenous therapy is taught or reviewed; (2) the video be assigned in conjunction with the coursework module; and (3) students be asked to evaluate the effectiveness of the video. (The script for the video is included in this report.) (Author/KC)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED291955

DEVELOPMENT OF A SELF-PACED VIDEO PROGRAM TO TEACH INTRAVENOUS THERAPY TECHNIQUES TO SECOND YEAR REGISTERED NURSING STUDENTS

Societal Factors Affecting Education

by

Marilyn Balint, R.N., M.S.N.

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.
Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
M Balint
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Dr. John R. West, Cluster Coordinator

Santa Ana Cluster

A Practicum presented to Nova University in partial fulfillment of the requirements for the degree of Doctor of Education

Nova University

February 1988

CE 049 844

BEST COPY AVAILABLE

ABSTRACT

DEVELOPMENT OF A SELF-PACED VIDEO PROGRAM TO TEACH INTRAVENOUS THERAPY TECHNIQUES TO SECOND YEAR REGISTERED NURSING STUDENTS

Marilyn Balint, R.N., M.S.N.

The purpose of this practicum was to develop a self-paced video program to be utilized by the registered nursing faculty at Long Beach City College to teach intravenous therapy techniques to second-year nursing students.

Four members of the faculty of the Division of Nursing and Health Technologies were asked to serve as a panel of experts during the video development process. Each step in the process of developing the video was presented to the practicum advisory panel who were asked to review the materials. The materials were then revised in accordance with the advisory panel's recommendations. The revised materials were then resubmitted to the panel for their approval. The process was continued until the materials were approved as presented. Four members of the Media Services Department provided direction regarding the script, format of the video, staging and titles and did the actual taping of the project.

The use of a self-paced video program to complement the lecture/discussion method of teaching was found to be educationally sound. The content of the Intravenous Therapy Video was determined based on the review of the literature and input from the advisory panel. The video was designed to complement the intravenous therapy content taught in Nursing 44A-Transition, a course in the second year of the program. It was

found that some intravenous procedures are best taught in another format and so were not included. Plastic containers were found to best meet the requirements for the video after a review of literature and survey of clinical agencies utilized by the nursing program. The video was taped in its entirety in a five hour block of time in the Media Services Department. The video is designed to be used by students in the learning center at the college where equipment can be obtained for repeat practice which was found to be an important factor in the mastery of complex skills.

Based upon the findings of this study, it was recommended that: the Intravenous Therapy Video be given consideration in any course in the registered nursing program where intravenous therapy is taught or reviewed; the video be assigned in conjunction with the Intravenous Therapy Module in the Transition Course for the Fall semester of 1988; an instrument be developed to evaluate the effectiveness of the video; students who complete the Transition Course in the Fall of 1988 be asked to evaluate the video to determine if the program is meeting student needs; the video be considered for use in the vocational nursing program since the new state regulations have increased the scope of the vocational nurses' involvement with intravenous therapy.

TABLE OF CONTENTS

Page

ABSTRACT ii

Chapter

1. INTRODUCTION 1

Underlying Problem 1
Purpose of the Study 2

2. BACKGROUND AND SIGNIFICANCE 4

Background 4
Significance to the Institution 5
Relationship to the Seminar 5
Review of the Literature 6

3. PROCEDURES 11

Definition of Terms 13

4. FINDINGS 15

5. DISCUSSION, IMPLICATIONS AND RECOMMENDATIONS 22

Discussion 22
Implications 24
Recommendations 25

BIBLIOGRAPHY 27

TABLE OF CONTENTS (cont.)

APPENDIXES

A. INTRAVENOUS THERAPY VIDEO SCRIPT 31

B. TITLES FOR THE INTRAVENOUS THERAPY VIDEO 43

Chapter 1

INTRODUCTION

Underlying Problem

Long Beach City College is a California community college that offers open access to low cost, comprehensive instructional programs in higher education. The registered nursing program at Long Beach City College is one such program. The program offers a two-year associate degree to students interested in becoming registered nurses. Over the last several years, the student population in the college and in the nursing program has changed radically to include many foreign-born Southeast Asians and others who are less prepared to meet the demands of the curriculum (Reed and Hudepohl, 1983).

Statistics from the Department of Nursing and Health Technologies show that attrition from the registered nursing program rose from the usual twenty percent to thirty-three percent in the course of one year (Faculty Meeting Minutes, 1987). This represents a sixty-five percent increase in attrition. The changing student population has been given as one possible reason for this increase in the numbers of students leaving the program before completion (Reed and Hudepohl, 1983). Many members of the registered nursing faculty believe that the complex nature of the skills that the student is required to master is also an important factor in attrition.

Intravenous therapy is one such complex and demanding group of skills. While in Nursing 44A-Transition, a course in the second year of the registered nursing program, the student is expected to learn to set up and maintain many different types of intravenous therapy equipment and

machinery. After completing the course, they are expected to provide safe and effective intravenous therapy for the hospitalized patient under direct supervision of a registered nurse. Students who cannot master the intravenous therapy skills cannot continue in the program. Over the last three years, there has been an increase in the number of students who have failed to master these skills (Transition Area Meeting Minutes, 1983-1987).

To address this problem, the Intravenous Therapy Module was developed to teach intravenous therapy techniques in the Transition Course (Balint, 1987). During the development of the module, members of the nursing faculty expressed an interest in the production of a self-paced video program to augment the lecture/demonstration method used to teach the psychomotor skills required in the module. The faculty felt that such a video could be used to help the student prepare for the module as well as reinforce the procedures and techniques practiced in the lab during the module.

The literature supports the effectiveness of a self-paced audio visual program such as a video tape to supplement the lecture method for the teaching of psychomotor skills (Cohen, 1981; Sox, 1984). We live in a visually oriented society and visualization has become an integral part of our communication process (Dwyer, 1987).

Purpose of the Study

The purpose of this practicum was to develop a self-paced video program to be utilized by the registered nursing faculty at Long Beach City College to teach intravenous therapy techniques to second-year nursing

students. The self-paced video program was designed to be used in conjunction with the Intravenous Therapy Module to reinforce the techniques presented in the lab.

While the focus of this practicum was on the development of the video to teach intravenous therapy, recommendations for validating the product after its implementation are included in the final chapter.

Chapter 2

BACKGROUND AND SIGNIFICANCE

Background

Intravenous (IV) therapy is an ever-increasing requirement of nursing practice. Fully one-quarter of all hospitalized patients and a growing number of home care patients require feeding by the IV route (Aisenstein, 1981). Competent nursing care depends, in part, on the nurse being skillful in carrying out IV therapy in a safe and efficient manner (BRN Report, 1987).

An Intravenous Therapy Module was developed to meet this need in the second year of the Long Beach City College nursing curriculum. The module was designed to teach and test IV therapy in five, three-hour lab periods. The focus of two of the labs in the module is on the introduction of the student to the equipment and techniques of intravenous therapy. The focus of the third lab is on teacher-supervised practice of the IV techniques. The last two labs are reserved for testing of the skills learned in the lab. All testing is done according to the critical elements that the student is given at the beginning of the module.

During the Intravenous Therapy Module, teachers are available for supervised practice of IV techniques at three of the five scheduled labs. However, because the IV techniques and equipment are complicated, most students require more time to practice than is available in the module. This additional practice is done without teacher supervision, usually with another nursing student who is learning the same skills. The students often inadvertently reinforce inaccurate procedure while practicing, further

delaying success on the Skills Assessment Test (Balint, 1987). The video on Intravenous Therapy will prevent this negative reinforcement by demonstrating the correct method of performing each of the intravenous skills and allowing the student the opportunity to practice each skill immediately following the demonstration.

Significance to the Institution

The self-paced video program on IV therapy will be used in conjunction with the Intravenous Therapy Module to teach IV therapy at Long Beach City College in the registered nursing program. The practicum is important to Long Beach City College because it will improve the way that IV therapy is taught thereby assisting the student to master the skills required to pass the Intravenous Therapy Skills Assessment. The results of the practicum may indirectly reduce attrition by providing a means for a diverse student group to be successful in one of the most difficult groups of psychomotor skills required in the registered nursing program.

Relationship to the Seminar

The world provides us with a dynamic environment that impacts on education. According to Varcoe (1985), it is possible to personalize learning using this ever-changing "living laboratory" as a primary tool in understanding societal factors that affect education. The recent influx of Southeast Asians and the decrease in student readiness have affected the registered nursing program. Recognizing the needs of this changing

student population and providing learning tools to assist them toward success is relevant to societal factors. This is especially relevant in view of the recent increase in attrition in the registered nursing program at Long Beach City College.

This practicum was appropriate for the seminar, Societal Factors Affecting Education, because the focus of the practicum was on developing a teaching aid that will meet the needs of the changing student population at Long Beach City College.

Review of the Literature

The need for an effective method of teaching nursing skills to students is a problem confronted by many educators. Graduate nurses are expected to have achieved competence in general nursing skills including IV therapy skills by the completion of their basic educational program. The traditional method of teaching skills during the clinical day is no longer effective. In discussing the problem, Duprey and Patten (1986:348) stated "today's teaching strategies must take into account scarce or heavily assigned clinical facilities, patients' rights to safe nursing care, student anxiety in new situations, limited clinical hours, and demands for cost containment."

Providing a safe, non-threatening environment that allows the students to learn basic nursing procedures through simulation is a an effective means to teach skills to nursing students. Through this method of learning, students become proficient in a skill before practicing it in the clinical area. This proficiency helps decrease student anxiety when the skill

is called for during actual clinical experience and helps ensure the patient's right to safe nursing care (Duprey and Patten, 1986).

In the laboratory setting, a single instructor may supervise several students at one time since there is no threat to patient safety. Because the student has achieved proficiency in the lab setting, instructors in the clinical area can focus on validating the student's performance of the skill rather than on teaching. The laboratory setting provides the added advantage of allowing each student an opportunity to practice skills that might not be encountered in the clinical area. In addition, each student may pursue proficiency at an individual rate, accommodating personal learning needs (Duprey and Patten, 1986). Gerlach and Ely (1971) emphasized the importance of self-paced learning in psychomotor practice, adding that short practice periods interspersed with short rest periods are more effective than long practice periods in learning psychomotor skills.

Hegstad and Zsohar (1986) argued that providing psychomotor practice as a part of an instructional program is costly in terms of both learner time and instructional materials. However, they agreed that student nurses cannot be provided with repeated practice of the psychomotor skills on live subjects because it is both impractical and unsafe.

Gomez and Gomez (1984) pointed out that learning a psychomotor skill requires that the student progress through a series of steps. These include: 1) an awareness of what must be accomplished, 2) identification of the equipment necessary for the task, and 3) knowledge of the specific procedure to be followed. Once these three steps are accomplished, the student must formulate a motor plan, or plan of action. Then, after performing the skill and receiving positive or negative feedback, the

student must make a judgement to perform the skill in the same manner at the next opportunity or to alter the motor plan and perform the skill using the adjustments.

Proficiency increases each time these learning steps are repeated. The student cannot learn to perform skills if the opportunity for practice does not arise (Gomez and Gomez, 1984). Gerlach and Ely (1971) added that more effective retention usually occurs when the student is required to over-learn a psychomotor skill, further emphasizing the need for sufficient practice time. Deutsch and Tobias (1980) agreed, reporting that repeat experiences with the skill and freedom to review instructional content is especially beneficial to high anxiety students. Duprey and Patten (1986:350) reported that "students particularly valued the organized practice sessions that allowed them to refine their skills with supervision and support."

Learning is often facilitated by using a variety of teaching methods. The use of visualized materials to complement regular instruction has become a common instructional technique at all levels of education. According to Dwyer (1987) research has shown that learning can be significantly improved using systematically designed visuals integrated into regular instructional/training sequences.

Many references were found to support the concept that the lecture method supplemented with a self-paced audio-visual program is effective. Rehn (1985) found a filmstrip program to be superior to the lecture method for instruction in intravenous therapy. Cohen (1981) reported that tutored video taped instruction is beneficial for specialized topics when compared with traditional lecture method. Sox (1984) recommended a technique for specialized topics using a videotaped lecture that can be interrupted for

discussion or questions. The method showed similar academic achievement as traditional lecture methods but rated higher with students, increasing participation.

Gorth (1968) reported that test scores were correlated with the viewing of videotapes of high quality and with the viewing of effective lectures by high ability students. Repetition of the materials on videotape intensified the effectiveness of the lecture. In addition, Deutsch and Tobias (1980) found that students low in prior achievement learned significantly more when allowed to review materials individually, especially when given the option to restart the materials whenever they wanted.

Buckley (1982) found that the videotape method of instruction was equal to the lecture method for teaching a skill to adolescents. In addition, the videotape method of instruction was more cost-effective in populations of more than twenty-four learners. This is an important consideration in the registered nursing program because there are over one-hundred second-year nursing students each year.

Rosenkoetter (1984) summarized techniques to keep students interested in class content. These techniques included a videotaped demonstration and a self-paced, unit-mastery approach. Following lecture content, videotaped demonstrations were presented that allowed students to review the data at intervals with practice, thus increasing retention and success.

Dahl (1984) suggested that the inability to interpret nonverbal cues and slang expressions inhibits the understanding and progress of foreign-born students. The author emphasized the need for attention to these details when preparing instructional materials for foreign-born students.

In summary, the literature reviewed stressed the importance of providing a learning environment, such as a laboratory setting, in which the student felt comfortable to review and practice the psychomotor skills introduced in the lab. It was stressed that repeated practice of psychomotor skills is required for mastery and that short periods of practice are more effective than long periods.

The review of the literature also supported the effectiveness of a self-paced audiovisual program such as a video to supplement the lecture method for the teaching of psychomotor skills. The video program should provide reinforcement of the materials discussed in lecture because repetition of the materials on videotape intensifies the effectiveness of the lecture. The review of the literature also indicated that the program will be more useful if it is designed so that students can operate it at their own pace.

Chapter 3

PROCEDURES

The purpose of the study was to develop a self-paced video program to be utilized to teach intravenous therapy techniques to second-year registered nursing students at Long Beach City College.

An explanation of the procedures that were used to complete this practicum is given on the following pages.

A review of the literature was made to determine the need for and effectiveness of such a program to augment the lecture/discussion method of teaching psychomotor skills. The process of developing a video was discussed with members of the faculty at Long Beach City College who are experts in the area of audiovisual production to determine the feasibility of the project.

Four members of the faculty of the Division of Nursing and Health Technologies at Long Beach City College were asked to serve in an advisory capacity during the video development process. These four faculty members were actively involved with the development of the Intravenous Therapy Module. Three of the four have recently taught intravenous therapy in either the first or the second year of the nursing program. Three have also taught Transition, the course in which the Intravenous Therapy Module is taught.

The fourth person asked to serve on the panel of experts is the Program Director for the Vocational Nursing Program. She was chosen for her expertise in the area of audiovisual materials and her experience in making an award-winning video program for instructional purposes. It was

also felt that it was important to have a representative of the vocational nursing program on the panel since changes in the California regulations for vocational nurses in the area of intravenous therapy indicate that all or part of the Intravenous Therapy Video may be useful in the vocational nursing program.

A list of procedures to be represented on the video program was developed from the review of the literature and from an evaluation of the procedures to be taught to nursing students in the Intravenous Therapy Module during Nursing 44A - Transition. The proposed procedures were presented to the panel of experts. The list was approved by the panel and accepted as the list of procedures to be represented on the program.

The practicum advisory panel was presented with a list of materials to be demonstrated on the video. The list was developed based on materials that were used in the hospital and in the on-campus labs. The merits of each type of material was discussed. An informal survey of the clinical agencies was conducted. Additional information was obtained from the program director of the registered nursing program. A consensus was reached by the advisory panel.

A meeting was held with members of the Media Services Department at Long Beach City College. Information was shared regarding the purpose of the video, the script, and the individuals to be involved in the taping. The segment titles, and the logical places to stop the program for practice, including the information needed to instruct the students in the process was also discussed. Details, such as music and the amount of materials needed to complete taping were evaluated. Following the meeting, the data were shared with the advisory panel for approval.

Based on the review of the literature, input from Media Services, manufacturer's directions, and input from working registered nurses, the first draft of the script for the video program was written and presented to the panel of experts. The draft was revised in accordance with the panel's input. The second draft of the script was presented to the panel and was approved as written.

A faculty member was chosen to be shown on camera demonstrating the intravenous therapy techniques and another was chosen to narrate the tape. These faculty members agreed to participate in the taping and the panel of experts approved the choices. Arrangements were then made with the Media Services Department to tape the video.

The video was screened for the panel of experts who evaluated it and accepted it as the finished product. This practicum includes a discussion of the process involved in the development of the video program to teach intravenous therapy. While the focus of this practicum was on the development of the program, the practicum includes recommendations for validating the product after its implementation.

Definition of Terms

The following terms are used in this practicum.

Registered Nursing Program. A two-year program of instruction culminating in an Associate Degree in nursing. The program prepares graduates to take the National Council Licensure Examination

Course. A six week, self-contained unit of instruction.

Module. A unit of instruction within a course.

Nursing 44A - Transition. A six week course in the registered nursing program at Long Beach City College.

Intravenous therapy. The administration of fluids, medications and/or blood and blood products by way of the venous system.

IV. An acronym for the word intravenous.

Intravenous therapy techniques. Psychomotor skills required to set up and maintain intravenous therapy.

Intravenous Therapy Module. A module designed to be used by Long Beach City College nursing faculty to teach intravenous therapy techniques to second-year nursing students.

Intravenous Therapy Skills Assessment. Testing of the psychomotor skills taught in the Intravenous Therapy Module. Testing is done by critical elements given to the student at the beginning of the module and adhered to throughout the module.

Clinical agency. Hospital used by the nursing program as a laboratory.

Chapter 4

FINDINGS

Based on the extensive review of the literature conducted during the development of an Intravenous Therapy Module for Long Beach City College (Balint, 1987), a list of proposed procedures to be demonstrated on the video program was prepared. The list of proposed procedures was presented to the practicum advisory panel. The list contained one group of procedures that involve setting up intravenous therapy equipment and one group of procedures that involve correcting common problems with IV equipment. The first group of procedures included: 1) setting up a standard IV administration set, 2) setting up a volume-controlled administration set, 3) setting up a standard secondary line, 4) setting up a short secondary line, 5) adding medication to an IV container, 6) adding a medication to a volume-controlled administration set, and 7) labeling containers to show volume to be administered per hour.

The second group of procedures, correcting common problems with IV equipment, included: 1) volume-controlled set not infusing, 2) too little fluid in the drip chamber, 3) too much fluid in the drip chamber, 4) diaphragm closed, 5) too much fluid in the volume-controlled chamber, 6) air in the line, and 7) changing the administration set without changing the container.

Several items taught in the Intravenous Therapy Module were not included in the list. These included: 1) comparing and contrasting infusion machinery, 2) IV credits, and 3) math problems related to IV credits. These content areas either require extensive equipment that is best found in the

hospital, as is the case with infusion machinery, or are best taught in the lecture/discussion format, as is the case with IV credits and math problems related to medications.

The panel of experts agreed that while the video must include the same procedures that are taught in the Intravenous Therapy Module, the three items identified are inappropriate for the video and are best taught in another format. The list of procedures to be demonstrated in the video was accepted by the panel of experts as presented.

Information was gathered regarding equipment to be demonstrated on the video. Glass intravenous containers were being used in the on-campus nursing labs at Long Beach City College for the purpose of teaching intravenous skills. Nursing faculty reported that the clinical agencies utilized by the nursing program for clinical practice were beginning to use plastic bags as a substitute for glass. The practicum advisory panel was divided as to whether glass or plastic equipment should be demonstrated on the video. Most of the members of the advisory panel felt that if plastic was used in the video it must also be used in the on-campus labs. This presented a problem according to some panel members because plastic containers, once opened, are difficult to reseal and must be discarded. New equipment would have to be used for each segment of the lab and that would increase costs. Members of the advisory panel argued that using materials that will be outdated in the near future was impractical and would result in early obsolescence of the video. The panel remained divided and it was suggested that a survey be done to determine the type of intravenous equipment in use in the clinical agencies.

An informal survey of the clinical agencies was conducted. Ten members of the nursing faculty talked to responsible individuals in the assigned agency to determine if glass or plastic intravenous equipment was being used in the agency. Of the four major clinical agencies surveyed, it was discovered that all are using or intend to use plastic containers in the near future.

Next, the problem of working with plastic containers in the on-campus labs was addressed. A simple, cost effective method of sealing the plastic containers, once opened, was devised by the supply clerk at the college. This made the use of plastic practical in the learning lab. Both the director of the registered nursing program and the department head agreed that it was possible to switch to plastic for demonstration and practice in the on-campus labs.

Given this new information, the panel of experts agreed that plastic containers should be utilized to demonstrate the procedures on the video. Abbott was chosen as the brand to be demonstrated because it was the type of equipment used in the largest clinical agency. Every student in the registered nursing program at Long Beach City College is assigned to this agency several times during the program.

A meeting was held with members of the Media Services Department at Long Beach City College. The objectives of the project were explained to the production crew. Since the procedures involved were complicated and long, the media experts suggested that each procedure be written out as clearly as possible. Each member of the production crew was to have a copy of the script before the next meeting so that details could be worked out. It was also suggested that two people be involved in the demonstration

of intravenous therapy techniques so that the complicated script could be read off screen while a second person performed the procedures on camera.

Titles were needed to identify each segment of the video. It was pointed out that the titles must correspond exactly to the terms used in the script. This would serve to provide reinforcement for the terms being used during the video. The titles would be produced on the computer in the studio by the production crew once the crew was given the exact wording.

Since the video was to be self-paced so that the student could stop the tape to practice, the production crew needed the exact location on the script of each break. The wording and timing for each break was also discussed. It was pointed out that the word "stop" should be included in the directions so the student would not use the pause button on the video player when practicing. Long pauses would result in overheating and destruction of the tape. Music to accompany the video was considered but it was determined that it would be distracting and would serve no purpose on a demonstration video of this type. Suggestions were made regarding the amount of equipment needed to complete the video. Two additional meeting dates were set, one to finalize the plan and a second for taping. The taping was to be done in the Long Beach City College recording studio.

The script was written for each of the procedures to be demonstrated in the Intravenous Therapy Video. This was accomplished by gathering the actual equipment needed to demonstrate each procedure. The manufacturer's suggested procedure was taken into consideration as were the suggestions of several registered nurses who use the materials daily. Inappropriate or confusing short cuts were eliminated. Each procedure was performed until it was determined that it was correct, comfortable and safe.

Care was taken to remove all non-verbal cues that might be confusing. Each step of the procedure was then recorded on paper. The wording of the script was edited until it was clear and concise. All slang expressions were systematically removed from the script to further decrease confusion. The script was presented to the practicum advisory panel for evaluation. Corrections were made and the revised copy was once again presented to the panel. The script was accepted and can be found in Appendix A.

An "actor" was selected to demonstrate the intravenous therapy procedures on camera. The selection was made on the basis of the individual's familiarity and comfort with the equipment since the procedures were complicated and familiarity would decrease the taping time as well as improve the clarity of the procedures. The author was to read the script off camera. Practice sessions were held to perfect each demonstration. Minor changes were made in the wording of the script as more comfortable ways of completing the procedure were identified.

Exact titles for each of the segments in the script were developed based on the content of the script. There are two main titles, Setting Up Intravenous Equipment and Correcting Common Problems with Intravenous Equipment. The subtitles under the first major heading are: A) Setting up a Primary Line, B) Setting up a Volume-Controlled Administration Set, C) Setting up a Long Secondary Line, D) Adding Medication to an IV Bag, E) Adding a Medication to a Volume-Controlled Administration Set, F) Marking an IV Bag, and G) Setting up a Short Secondary Line for Medication (Secondary Backfill). The second set of subtitles under the main title Correcting Common Problems with Intravenous Equipment are: A) Volume-Controlled Administration Set Not Infusing, B) Too Little Fluid in the Drip

Chamber, C) Too Much Fluid in the Drip Chamber, D) Diaphragm Closed, E) Too Much fluid in the Chamber of a Volume-Controlled Administration Set, F) Removing Air from the Line, and G) Changing the Tubing Without Changing the Container. Members of the Media Services team suggested that the main titles be in capitols and a different color than the subtitles. The titles were submitted to the practicum advisory panel and were accepted as written (Appendix. B).

A second meeting was held with the Media Services Team. Copies of the script were distributed. Clothing to be worn on camera was discussed. It was decided that the actor would wear a white lab coat over a brightly colored dress. This would reflect laboratory attire and would tape well, the bright colored dress preventing the actor from looking "washed out." A tour of the recording studio was conducted by the production team since they have found that the sound stage is often intimidating to newcomers. It was felt that a tour would help desensitize the participants to the area. The tour also provided the participants the opportunity to begin planning how to set up materials for each segment of the video.

The video was to be taped in sequence, with a short break between each segment. The production team was not familiar with the intravenous equipment and so could not help in setting up. Since several of the procedures required new equipment, it became apparent that duplicate materials would be required. Having duplicates of the equipment would also speed up the taping time which members of the production team estimated at four hours. The titles were displayed on the computer by the production team and were accepted after minor changes. The taping date was finalized.

A list of supplies was developed based on the procedures to be demonstrated and the sequence in which they were to be demonstrated. Adjustments were made to allow for problems with the equipment and with the procedures. The list of necessary supplies was submitted to and approved by the advisory panel. The list was then filled by the supply clerk at the college.

The video was taped in its entirety in a five-hour block of time in the Media Services Department as planned. Two cameras were used, one for close-ups and one for distance. Titles and sound were controlled in the booth by the Media Services team. The practicum advisory panel viewed, evaluated and accepted the video as taped. The video program is available upon request.

Chapter 5

DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS

Discussion

There is no question that there are more high-risk students in the registered nursing program at Long Beach City College than ever before. As long as the open-door admission policy is in effect at the college it can be expected that this trend will continue (Reed and Hudepohl, 1983). Efforts must be made at every level to increase the success of these high-risk students as well as other students without minimizing educational quality.

Nursing is a difficult program and intravenous therapy is but one of the complex groups of skills that must be mastered during the program. Mastery of intravenous therapy skills requires an awareness of what must be accomplished, identification of the equipment necessary for the task, and knowledge of the specific procedures to be followed (Gomez and Gomez, 1984). Once the student is aware of what must be accomplished and the specific procedures to be followed, he/she must practice repeatedly.

Periods of supervised practice with intravenous therapy equipment are scheduled during the Intravenous Therapy Module, but many students need additional practice to successfully master the required skills. Students practicing together have not been successful since they often inadvertently reinforce incorrect procedures (Balint, 1987). Because there are approximately fifty students in each class in the second year of the nursing program, teacher time for supervised practice is limited. An alternate means of providing assistance in learning IV techniques was needed.

The purpose of this practicum was to develop a self-paced video program to be utilized by registered nursing faculty at Long Beach City College to assist the second-year nursing student to master intravenous therapy techniques. The self-paced video program was designed to be used in conjunction with the Intravenous Therapy Module to demonstrate and to reinforce the techniques presented in the module. The review of the literature supported the effectiveness of a self-paced audiovisual program to supplement the lecture method for the teaching of psychomotor skills (Rehn, 1985; Cohen, 1981; Sox, 1984). The video program provides reinforcement of the materials discussed in the lecture. And, because the demonstration of the procedures on videotape is exactly the same as the procedures taught and demonstrated in the module, the learnings will be reinforced (Dwyer, 1987; Duprey and Patten 1986).

The focus of the Intravenous Therapy Video is on those procedures that can be demonstrated effectively and that are necessary to perform safe and effective intravenous therapy. Information such as infusion machinery, IV credits and math problems related to IV credits, while they are included in the Intravenous Therapy Module, are not effectively demonstrated on video and so were omitted.

Because intravenous skills are complex, it was felt that they must be mastered on campus in the laboratory before they can be performed safely on the hospitalized patient (Duprey and Patten, 1986; Hegstad and Zsohar, 1986). The literature stressed the importance of providing a learning environment in which the student felt comfortable to review and practice the psychomotor skills introduced in the lab (Duprey and Patten, 1986). It was recommended that the video be available in the learning center laboratory, an area that is "user friendly." The equipment to play the video

and to practice the intravenous therapy skills will be available whenever the learning center is open. The learning center technician will be available for questions and appointments can be made with faculty for problems the technician cannot solve.

It was stressed in the literature that repeated practice of psychomotor skills is required for mastery and that short periods of practice are more effective than long periods (Gomez and Gomez, 1984; Duprey and Patten, 1986; Gerlach and Ely, 1971). The review of the literature also indicated that the program would be more useful if it was designed so that students could operate it at their own pace (Duetsch and Tobias, 1980; Rosenkoetter, 1984). With this in mind, the video was developed in short segments making it possible to stop at any point for practice.

The video was designed for students to work alone or in groups. Because the correct procedure is available on video, incorrect technique will be minimized.

Implications

Faculty in the registered nursing department at Long Beach City College are aware that nursing is a difficult program and are constantly looking for ways to improve the student success rate. The results of this study provide a self-paced audiovisual program that will simplify the teaching and testing of intravenous therapy by providing an alternative method of learning for the student. When used in conjunction with the Intravenous Therapy Module, the video will result in more effective teaching of the complex and demanding group of skills. The language of the video is free of slang and nonverbal cues and should be helpful to

foreign-born students. The student will demonstrate increased proficiency with intravenous therapy skills that can be measured by an increase in the percentage of students passing the Intravenous Therapy Skills Assessment. The improvement in student proficiency with intravenous therapy skills will also indirectly improve our relationship with our clinical agencies who look for, and expect, proficiency in intravenous technique in our graduates.

Recommendations

Based upon the findings of this study, it is recommended that:

1. The Intravenous Therapy Video be given consideration in any course in the registered nursing program where intravenous therapy is taught or reviewed.

2. The video be assigned in conjunction with the Intravenous Therapy Module in the Transition Course for the Fall semester of 1988. The video should be required viewing at the beginning of the module and must be available to the students in the Learning Center throughout the module. Equipment to practice the skills demonstrated on the video should be available and in working order. The Learning Center Technician and Supply Clerk should be assigned to inventory the supplies regularly. Faculty who teach the module should be available to answer questions and assist with problems as needed.

3. An instrument be developed to evaluate the effectiveness of the video.

4. Students who complete the Transition Course in the Fall of 1988 be asked to evaluate the video to determine if the program is meeting student needs.

5. The video be considered for use in the vocational nursing program since the new state regulations have increased the scope of the vocational nurses' involvement with intravenous therapy.

REFERENCES

Aisenstein, Terry Jo. "Toward Impeccable IV Technique: Those All-Too-Common IV Complications." RN, (March 1981): 38-41.

Balint, Marilyn. "Development of an Intravenous Therapy Module for Second Year Registered Nursing Students." Practicum. Nova University, (June 1987). Bethedsa, MD. ERIC Documentation Retrieval Service. ED281044.

Buckley, Kathleen. "Teaching Home Monitoring of Blood Pressure to Adolescents." Adolescence, 17. no. 65. (Spring 1982): 187-97.

California Board of Registered Nursing. "Nursing Practice Act." Laws Relating To Nursing Education Licensure - Practice. California Department of Consumer Affairs. Sacramento: 1987, 33-59.

Cohen, Peter A. "Analysis of Outcome Studies of Visual-Based Instruction." Educational Communication and Technology, 29 (Spring 1981): 26-36.

Dahl, Rex C. "High Technology, Language Learning, and Nonverbal Cultural Literacy." Teaching of Psychology 17, no 1 (Spring 1984) 66-75.

Deutsch, Toni and Sigmund Tobias. "Prior Achievement, Anxiety and Instructional Method." Paper presented to the Annual Meeting of the American Psychological Association, (September 1980): Bethesda, Md. ERIC Documentation Retrieval Service. ED190646.

Duprey, Margaret and Bernardine C. Patten. "Playing for Proficiency: A New Approach to Motivation and Psychomotor Learning. Journal of Nursing Education, 25, no. 8 (October 1986): 348-51.

Dwyer, Francis M. Strategies for Improving Visual Learning. Pennsylvania: Learning Services, 1987

Faculty Meeting Minutes. Long Beach City College Registered Nursing Program. 1987.

Gagne, Robert M. and Leslie J. Briggs. Principles of Instructional Design. 2nd Edition, New York: Holt, Rinehart, and Winston, 1979.

Gerlach, Vernon S. and Donald P. Ely. Teaching and Media: A Systematic Approach. New Jersey: Prentice-Hall, 1971.

Gomez, Gerda E. and Efrain A. Gomez. "Learning of Psychomotor Skills: Laboratory versus Patient Care Setting." Journal of Nursing Education, 26, no. 1 (January 1987): 20-24.

Gomez, Gerda E. and Efrain A. Gomez. "The Teaching of Psychomotor Skills In Nursing." Nurse Educator, (September1984): 35-39.

Gorth, W. P. Validation of a Criterion of Lecture Effectiveness. Bethesda, Md.: ERIC Document Reproduction Service, ED021464, 1968.

Hegstad, Lorrie N. and Helen Zsohar. "A Study of the Cost-Effeciveness of Providing Psychomotor Practice in Teaching Intravenous Infusion Techniques." Journal of Nursing Education, 25, no. 1, (January 1986): 10-14.

Lenburg, Carrie B. The Clinical Performance Examination. New York: Appleton-Century-Crofts, 1979.

Reed, Suellen B. and Nancy C. Hudepohl. "High Risk Nursing Students: Emergence of Remedial/Developmental Programs." Nurse Educator. (Winter1983): 21-26.

Rehn, Robert A. Relationship Between Dogmatism, Self-Esteem, Locus of Control, and Predisposition Toward Two Instructional Methods Among Female Nursing Students. Bethesda, Md.: ERIC Document Reproduction Service, ED2566330,1985.

Rosenkoetter, John D. "Teaching Psychology to Large Classes: Videotapes, PSI and Lecturing." Teaching of Psychology, 11, No. 2, (April 1984): 85-87.

Sox, Harold C. et al. "Tutored Videotape-Instruction in ClinicalDecision-Making." Journal of Medical Education, 59, No. 3, (1984): 188-95.

"Ten Trends to Watch." Nursing and Health Care, 7, no. 1., January 1986, pp. 17-19.

"The BRN Report: The Official Publication of the California Board of Registered Nursing." Sacramento: 5, No. 1. (Spring 1987).

Transition Area Meeting Minutes. Long Beach City College. Division of Nursing and HealthTechnologies . 1983-87.

Varcoe, Kenneth E. "Societal Factors Affecting Education." Study Guide. Nova University, 1985.

APPENDIX A

INTRAVENOUS THERAPY VIDEO SCRIPT

Long Beach Community College District
LONG BEACH CITY COLLEGE
Division of Nursing and Health Technologies
Core Nursing/ADN Program

INTRAVENOUS THERAPY VIDEO SCRIPT

I. SETTING UP INTRAVENOUS EQUIPMENT

A. Setting up a Primary Line

By definition, a primary line is any line that is directly connected to the patient's needle insertion site.

1. After checking the doctors orders
2. Gather the equipment. You will need:
   the correct solution
   and tubing
   and a receptacle
3. Working on a flat, stable surface, such as an overbed table
4. Open the tubing container by removing the cellophane
5. Pick up the tubing and untangle it
6. Note the protective cap over the obturator and the needle end of the tubing
   (Note: find the upper Y junction and move the roller clamp toward it)
7. Move the roller clamp to within one inch of the Y junction and close the clamp
   (pause)
8. Examine the intravenous container for:
   Clarity of solution
   fragments of rubber
   and leaks, especially around the neck of the bag
9. To open the IV bag, stabilize it with one hand and pull the tab with the other

10. While still holding the IV bag, remove the protective cap from the obturator end of the tubing maintaining sterility
11. Position your fingers behind the plastic flange on the tubing Stabilize the bag with one hand and insert the obturator into into the container using a twisting motion
12. Hang the bag on the IV pole
13. Squeeze the drip chamber allowing it to partially fill

To purge the line of air

14. Invert the Y junction on the upper end of the tubing
15. Slowly open the roller clamp and allow fluid to flow through the rest of the line
16. Close the clamp
17. Remove the protective cap from the needle end of the tubing
18. Slowly open the roller clamp and allow fluid to flow through the rest of the line
19. Direct the end of the tubing downward so fluid will flow into the receptacle. This downward flow of fluid will maintain sterility of the tubing
20. Close the roller clamp
21. Replace the sterile cover on the needle end of the tubing and check the line for air
22. Loop the tubing over the IV pole

B. Setting up a Volume-Controlled Administration Set

1. After checking the doctor's orders
2. Gather the equipment. You will need:
   the correct solution and tubing
   and a receptacle
3. Working on a flat, stable surface, such as an overbed table
4. Open the tubing container by removing the cellophane
5. Pick up the tubing and untangle it
6. Note the protective cap over the plunger and needle site
7. Move the roller clamp up to about one inch below the drip chamber
8. Close the roller clamp

9. Close the slide clamp between the obturator and soluset .
10. Note the Y junction that allows this tubing to be used either as a primary or secondary line
11. Examine the intravenous container for:
    clarity of solution
    fragments of rubber
    and leaks, especially around the neck of the bag
12. To open the IV bag, stabilize it with one hand and pull the tab with the other
13. While still holding the IV bag, remove the protective cap from the obturator end of the tubing maintaining sterility
14. Position your fingers behind the plastic flange on the tubing Stabilize the bag with one hand and insert the obturator into the container using a twisting motion. Keep the obturator tip and the container top sterile
15. Hang the bag on the IV pole
16. The slide clamp between the bag and soluset prevents the fluid from entering the soluset
17. Open the slide clamp and allow about 30 ml. of fluid to flow into the soluset
18. Close the slide clamp completely
19. Gently squeeze the drip chamber to partially fill
20. Remove the protective cap from the needle end of the tubing maintaining sterility
21. Slowly open the roller clamp and allow fluid to purge the line of air
22. Direct the end of the tubing downward so fluid will flow into the receptacle
23. Close the roller clamp
24. Replace the sterile cover on the needle end of the tubing
25. Loop the tubing over the IV pole in readiness for the next step

C. Setting up a Long Secondary Line

By definition a secondary line is any line that is connected to any port in the primary line.

1. Prepare your primary and secondary line as previously described
2. Choose a medium gauge needle
3. Open the needle package and remove the capped needle
4. Remove the protective cap from the needle end of the secondary line keeping the tip sterile
5. Attach the needle maintaining sterility
6. Purge the needle of air by removing the needle cover and opening the roller clamp. Replace the needle cover
7. Notice the primary line has two potential ports
8. The port nearest the patient will be used
9. Use friction to thoroughly cleanse the port with an alcohol wipe
10. Remove the needle cap and insert the needle through the bullseye of the port
11. To tape the needle in place, tear a piece of tape approximately three to four inches long. Make a quarter-inch courtesy tab on each end of the tape by folding the tape back on itself
    Place the tape around the primary and secondary tubing at the needle insertion site sandwiching the two lines between the tape
12. Regulate the secondary line with the roller clamp

D. Adding Medication to an IV Bag

A medication may be added directly to an IV bag

1. Prepare the medication by drawing it up into a syringe observing the five rights and all safety precautions
2. Prepare a label according to hospital policy
3. Lay the IV bag on a firm flat surface
4. Cleanse the medication port using an alcohol wipe and friction
5. Insert the needle of the medication syringe into the bullseye of the port
6. Inject the medication
7. Remove the needle and syringe and recap the needle for safety
8. Gently agitate the bag to mix the solutions

9. Apply the label avoiding obstruction of the bag label and calibrations
10. The IV bag is now ready for use

E. Adding a Medication to a Volume-controlled Administration Set

1. Check the medication order and gather the equipment
   You will need the correct medication and two alcohol wipes
2. Make a label following the policy of the clinical agency
   The label usually includes the medication and amount, the date, and time and your initials or signature
3. Add solution to the soluset. For this example a total of 30 ml will be used. Open the slide clamp between the bag and the soluset and allow the chamber to fill to the 30 ml mark
4. Close the slide clamp completely
5. Stabilize the soluset and identify the medication port
6. Cleanse the port using friction
7. Remove the cap from the needle
8. Insert the needle directly into the bullseye
9. Inject the medication directly into the solution. Do not allow the medication to run along the side of the soluset
10. Remove the needle and recap for safety
11. Gently roll the soluset to mix the medication with the IV solution
12. Place the medication label on the soluset
13. Adjust the drip rate according to the doctor's orders

F. Marking an IV bag

Commercially prepared color-coded strips are available for all of the standard IV rates. Choose the strip that corresponds with the ordered rate. For this example a strip premarked for 125 ml per hour will be used.

1. Fill in the top of the strip with the date, the hour that the bag will be hung, the ml/hr rate ordered

2. Fill in the hour for each of the marks on the strip working with the bag on a flat, level surface
3. Remove the protective covering from the strip and place it on the bag next to the calibrations aligning the arrow at the top of the strip with the first marking at the top of the bag

G. Setting up a Short Secondary Line for Medication (Secondary Backfill)

1. Gather the equipment. You will need a secondary line, alcohol wipes and the medication which comes from the pharmacy in a small bag or bottle
2. Open the box and remove the tubing, needle and the plastic hanger. Note that both ends of the tubing are covered with protective caps
3. Close the slide clamp on the secondary tubing
4. Attach the needle to the secondary tubing
5. Open the medication container exposing the sterile top. If you accidently touch the top cleanse it thououghly with an alcohol wipe
6. Plunge the obturator into the bullseye of the medication container
7. Identify the port to be used to administer the medication. For this procedure, the port just below the bag on the primary line will be used
8. Cleanse the port with an alcohol wipe using friction
9. Insert the needle into the port
10. With the medication container inverted in one hand open the slide clamp allowing fluid to flow from the primary line toward the medication container, purging the secondary line of air
11. Close the slide clamp and check the line for air
12. Hang the medication container on the IV pole
13. Lower the primary bag using the plastic hanger
14. Open the slide clamp on the secondary line
15. Regulate the flow of the medication using the roller clamp
16. Count the drip rate at the drip chamber on the medication line

When the medication is completed. (Note: change medication bottle to show empty container)

17. Close the slide clamp on the secondary line
18. Raise the primary IV bag to its original position
19. Re-regulate the IV to deliver the ordered IV rate

II. CORRECTING COMMON PROBLEMS WITH INTRAVENOUS EQUIPMENT

A. Volume-Controlled Administration Set not Infusing

Check to see that:

1. There is fluid in the bag
2. That the IV pole is high enough
3. That the airway is open
4. That there is fluid in the soluset
5. That the diaphragm is open
6. That there is fluid in the drip chamber
7. That the roller clamp is open
8. That there is no blood in the tubing
9. That the position of the extremity is not occluding the needle
10. That the tubing is not kinked or under the patient
11. That the IV is not infiltrated
12. If the IV still will not run, milk the tubing to flush the line

B. Too Little Fluid in the Drip Chamber

(Show drip chamber with too little fluid)

Gently squeeze the drip chamber

C. Too Much Fluid in the Drip Chamber

(Show drip chamber with too much fluid)

1. Slow the IV to a TKO rate if possible
2. Pinch the tubing just below the drip chamber
3. Swing the bag to an upright position and squeeze then release the drip chamber forcing excess fluid back into the container
4. Return the bag to an inverted hanging postions, release the tubing and continue the infusion
5. Check the tubing for air and reregulate if necessary

D. Diaphragm Closed.
(Show closed diaphragm)

1. Check to see that there is solution in the soluset; add at least ten ml. if it is empty
2. Gently squeeze the base of the drip chamber. This will often be all that is necessary to open the diaphragm
3. If this action does not work:
4. Slow the IV to a TKO rate
5. Close the airway with the slide clamp
6. Pinch the IV tubing directly under the drip chamber
7. Invert the soluset so that the hinge side of the diaghragm is in the downward position allowing gravity to work for you
8. Quickly and gently squeeze and release the drip chamber
9. Slowly lower the soluset allowing the diaphragm to float in the solution
10. Release the tubing
11. Open the airway
12. Adjust the drip rate

E. Too Much Fluid in the Chamber of a Volume-Controlled Administration Set
(Show chamber filled to 30 ml.)

1. Slow the IV to a TKO rate
2. Close the airway to the soluset
3. Pinch the tubing just below the drip chamber
4. Take the bag off the IV pole and set it on a firm surface
5. Open the slide clamp between the bag and the soluset
6. Hold the soluset upside down over the bag
7. Gently squeeze the soluset to force the fluid back into the bag It is best to empty the soluset as much as possible
8. Close the slide clamp between the bag and the soluset
9. Rehang the bag, then release the tubing
10. Open the airway
11. Check the tubing for air

12. Check to see that you have the desired amound of fluid in the soluset. Drop additonal fluid if necessary. Readjust the drip rate

F. Removing Air from the Lines
(Show air in the line)

1. Slow the IV to a TKO rate
2. Gather the equipment. You will need a three or five ml syringe, with a 21 gauge needle, alcohol wipes and a receptacle
3. Prepare your syringe
4. Identify the port between the patient's IV site and the air in the line
5. Using friction, thoroughly cleanse the port with an alcohol wipe
6. Remove the needle cover
7. Stabilize the port with one hand and with the syringe in the other hand, insert the needle through the bullseye of the port
8. Allow the air to proceed down the tubing to the level of the port
9. When the air reaches the level of the port, stabilize the port and the barrel of the syringe with one hand. Pinch off the IV tubing between the port and the IV site and aspirate, causing the air to be pulled into the syringe
10. If the syringe is full and the IV tubing still contains air, remove the syringe, squirt out the solution and reinsert to remove the remaining air taking care not to contaminate the needle or the port
11. When the tubing is clear of air, withdraw the needle and syringe
12. Flush the IV line by opening the clamp for a few seconds to be sure the IV will run freely
13. Readjust the rate

G. Changing the Tubing Without Changing the Container

It is sometimes necessary to change the tubing without changing the container. For this example, a standard primary line will replace a soluset.

1. Gather the equipment. You will need the correct tubing, tape and a receptacle
2. Prepare the new tubing
3. Cut tape into strips
   Two strips about 3-4 inches long and 1/2 inch wide
   Four strips about 3 inches long and one inch wide
4. Place a chux under the patient's arm to protect the linens
   Remove some of the tape from the IV site leaving enough to maintain the IV securely
   Slow the drip rate to TKO
5. Take the bag off of the IV pole and remove the tubing taking care not to contaminate the bag or the obturator
6. Hang the obturator over the top of the IV pole
7. Moving as quickly as possible, put the new tubing into the bag maintaining sterility. Purge the line as previously described
8. Place the needle end of the new tubing adjacent to the IV site
9. To make the change at the needle insertion site, loosen the remaining tape. Stabilize the hub of the needle at the IV site. Loosen the old IV tubing but leave it in place. Remove the cap on the new tubing, keeping the tip sterile. Remove the old tubing and quickly attach the new tubing to the needle hub, gently twisting to secure it. Hold the needle securely as the weight of the tubing will pull the needle out of the vein
10. Quickly open the roller clamp on the new tubing allowing the IV to run freely for a few seconds while you observe for signs of infiltration, then adjuct to a TKO rate
11. Tape the new tubing in place securely with a short piece of one-inch tape
    Place a narrow strip of tape under the tubing at the needle site with the sticky side up. Criss cross the tape over the connection and secure on either side of the tubing. Tape securely in place with the remaining tape
12. Make a loop of tubing to insure that there is no tension on the IV site. Do not kink the tubing when making the loop
13. Re-adjust the rate

APPENDIX B

TITLES FOR THE INTRAVENOUS THERAPY VIDEO

Long Beach Community College District
LONG BEACH CITY COLLEGE
Division of Nursing and Health Technologies
Core Nursing/ADN Program

TITLES FOR THE INTRAVENOUS THERAPY VIDEO

I. SETTING UP INTRAVENOUS EQUIPMENT

- A. Setting up a Primary Line
- B. Setting up a Volume-Controlled Administration Set
- C. Setting up a Long Secondary Line
- D. Adding Medication to an IV Bag
- E. Adding a Medication to a Volume-Controlled Administration Set
- F. Marking an IV Bag
- G. Setting up a Short Secondary Line for Medication (Secondary Backfill)

II. CORRECTING COMMON PROBLEMS WITH INTRAVENOUS EQUIPMENT

- A. Volume-controlled Administration Set not Infusing
- B. Too little Fluid in the Drip Chamber
- C. Too Much Fluid in the Drip Chamber
- D. Diaphragm Closed
- E. Too Much Fluid in the Chamber of a Volume-Controlled Administration Set
- F. Removing Air from the Line
- G. Changing the Tubing Without Changing the Container